# Medical Logistics and the Net-Centric Future in DoD

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# Purpose

- Review DoD strategy and guidelines for net-centric data management
- Relate to other major initiatives: BSM, Data Synchronization, MEDLIFE
- Envision potential implications and opportunities for Medical Logistics
  - Emphasis on Net-Centric Medical Catalog

***Objective is to prompt a mostly non-technical discussion on future strategies — this is not a decision brief!***

# Overview

- Relevant documents
- Concepts
- Net-centric data management strategy
  - DoD policies and goals
  - Resources and schedule
- Net-centric medical catalog
- Relation to other initiatives
- Summarize strategic opportunities and challenges

# Relevant documents

- DoD Net-centric Data Management Strategy, 9 May 2003
- Net-Centric Checklist, v2.1.3, 12 May 2004
  <http://www.defenselink.mil/nii/doc/>
- DoD Discovery Metadata Standard, Draft, v1.2, 2 June 2003

*These documents reflect that the transition to net-centric data management is still in early*

# Concepts

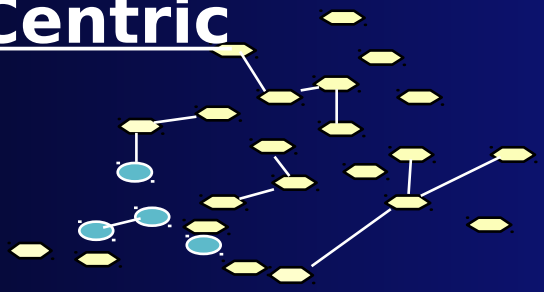
- Shared space
- Communities of Interest (COI)
- Structural metadata (and the function of the metadata registry)
- Discovery metadata (and the metadata catalog)
- Data pedigree
- Designated authoritative sources

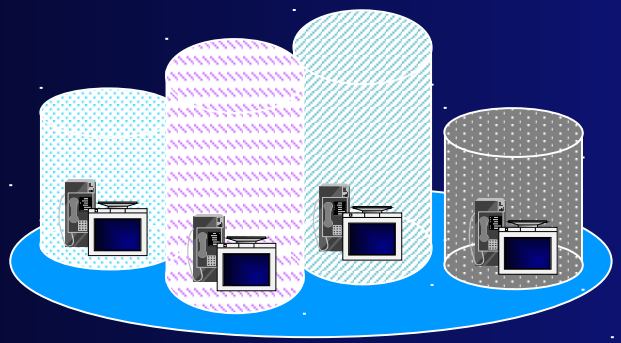
# Concepts: Shared Space

- Definition: A mechanism that provides storage of and access to data for users within a  bounded network space
  - Provides virtual or physical access to data assets such as: catalogs, web sites, documents and data bases
  - Any user, system or application that posts data uses shared space
- Shared space implies sharing data in many-to-many relationships
  - *This is a cultural as well as a technical change!*

# Concepts: Shared Space

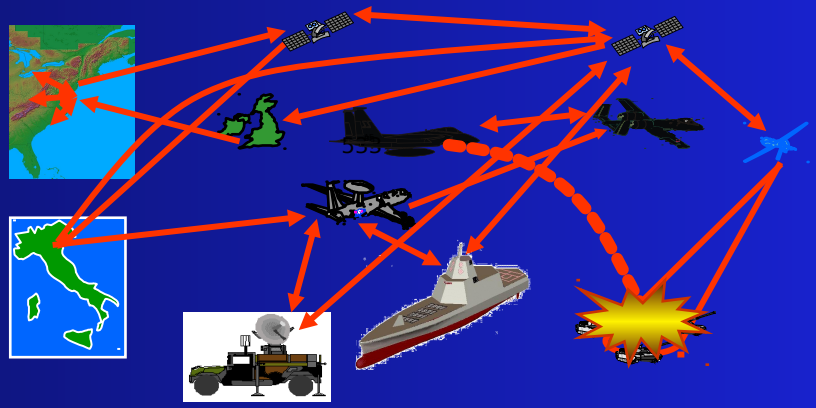
**Platform- and Application-Centric**





**Data- and Net-Centric**





**Traditional stove-pipe approach *v.* Fused information available**

**Point-to-point catalog data push v. Up-to-date catalog and ass**

# Concepts: Communities of Interest (COI)

- Definition: collaborative groups of users who must exchange information in pursuit of their shared goals, interests, missions, or business processes and who therefore must have shared vocabulary for the information they exchange
  - May have an explicit charter or implicit authority

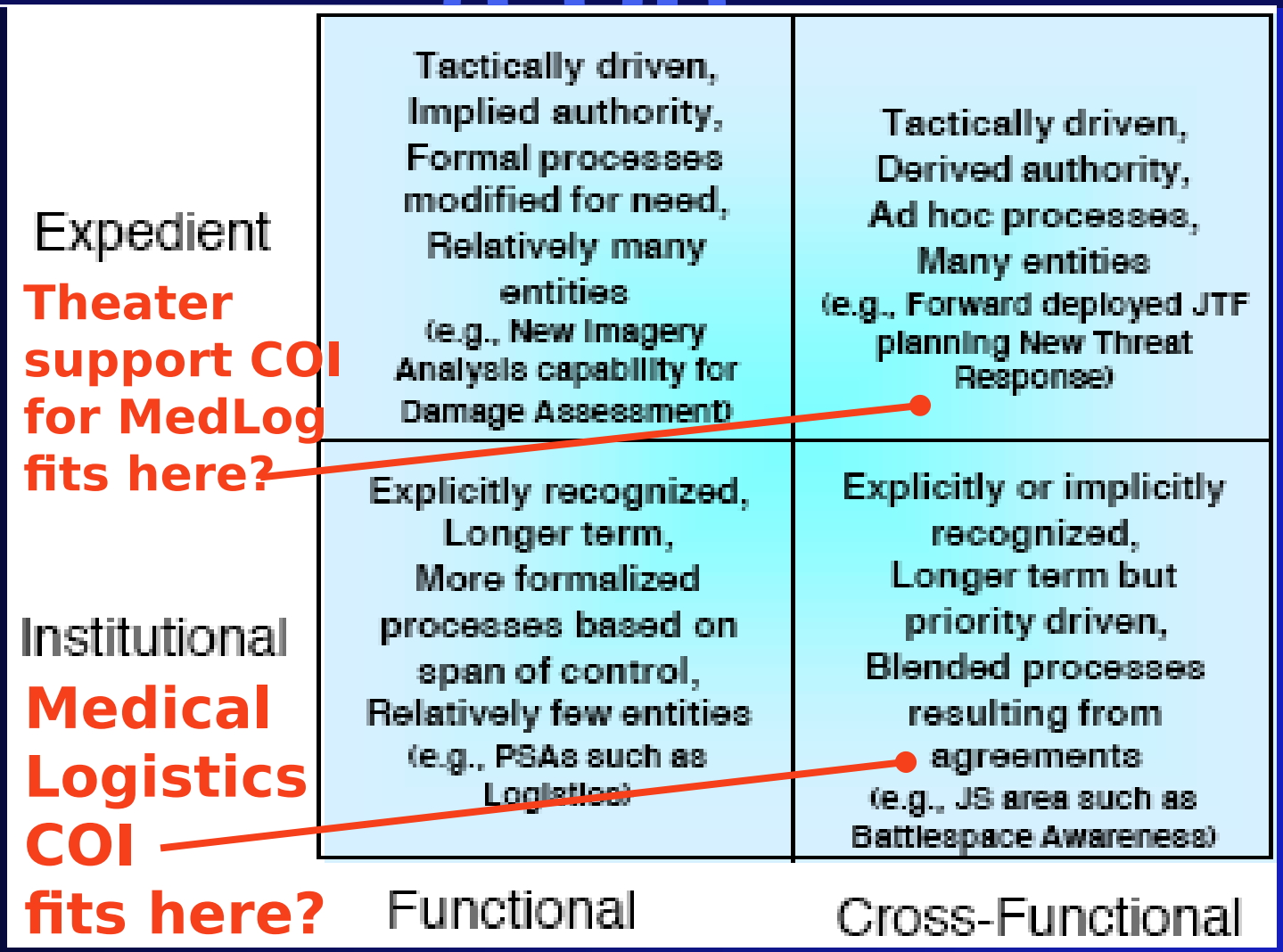
# Concepts: Communities of Interest (COI)

- What COIs do:
  - Ensure organization and maintenance of data
  - Standardize and control data elements at the community level to meet needs, without requiring standardization across entire DoD Enterprise
  - Promote data posting
  - Establish shared space
  - Create metadata catalogs to advertise data

# Concepts: Communities of Interest (COI)

- What institutional COIs do
  - Establish COI-specific metadata structures
    - I.E., entities, classes, relationships, attributes, data standards, business rules for data objects
  - Define community ontologies (categories, thesaurus, key words, taxonomy, …)
  - Catalog data and metadata
  - Have members post data
  - Designate authoritative sources

# Concepts: Communities of Interest (COI)

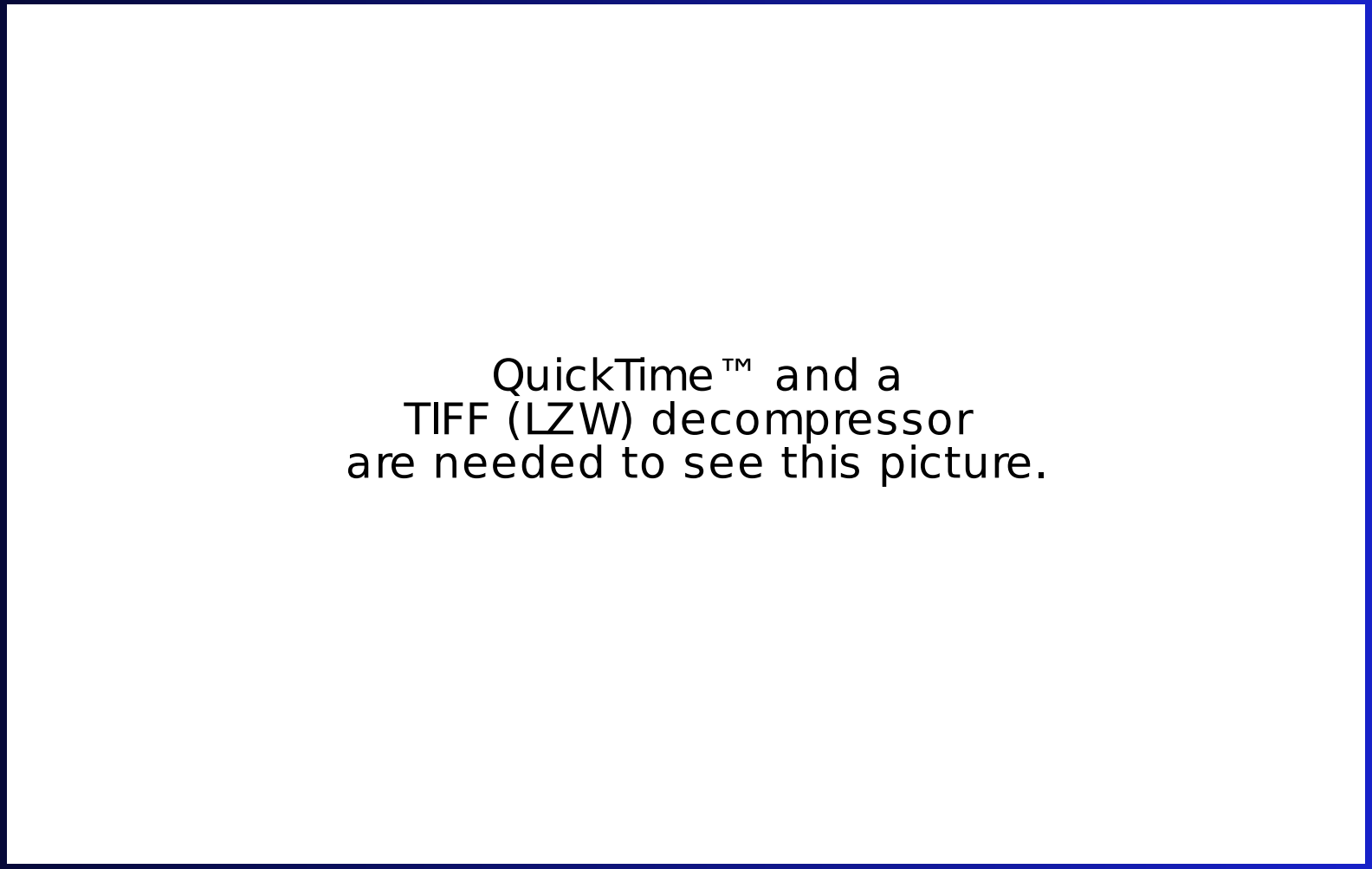



Characteristics of COIs from DoD Net-Centric Data Strategy

# Concepts: Structural Metadata

- A way to tell users, developers and other systems about how a COI has chosen to structure its data
- Stored in part of the DoD metadata registry

# Concepts: Structural Metadata

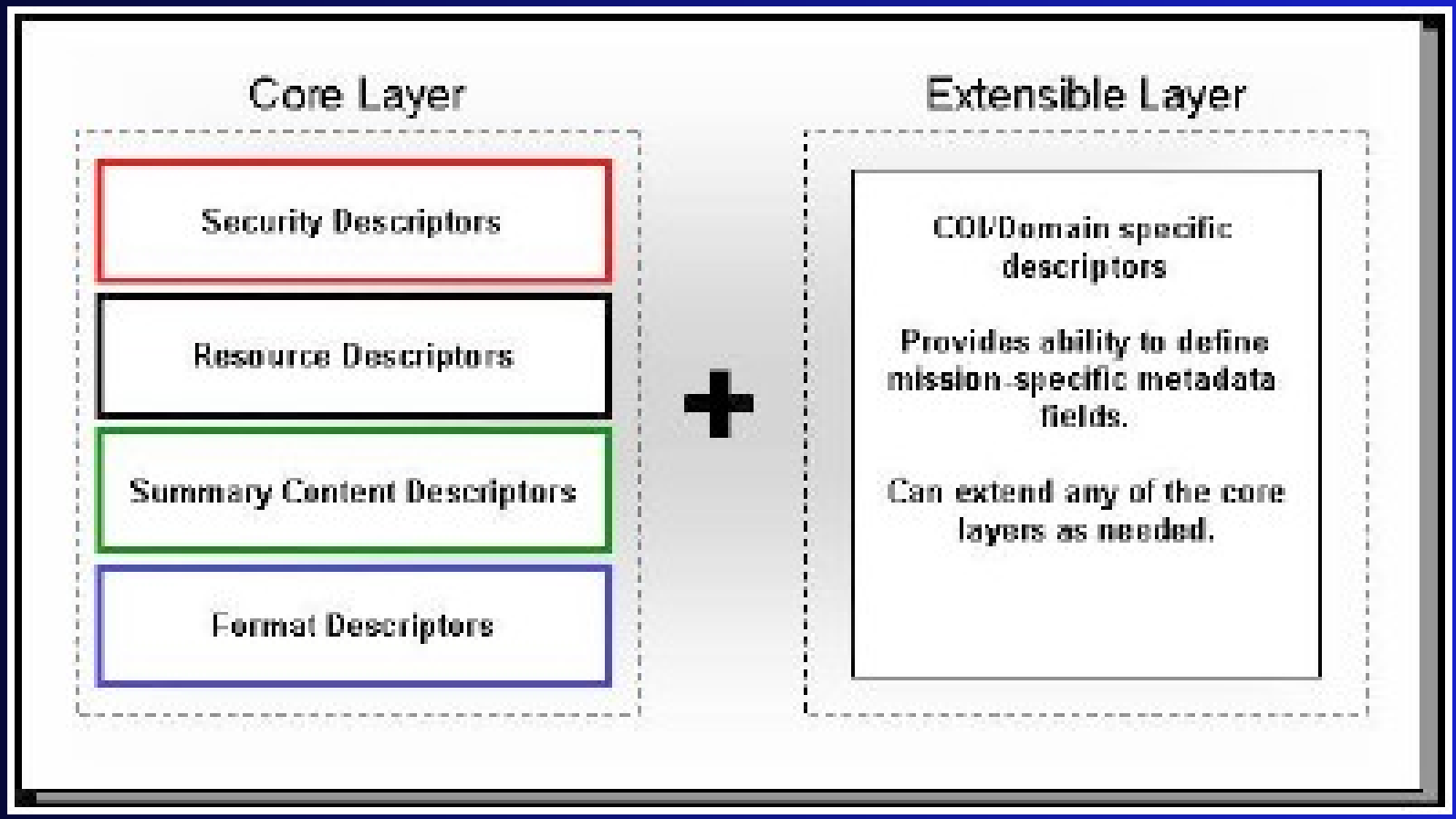


# Concepts: Discovery Metadata

- A way to enable users and systems to search for needed data in a shared space
- Discovery metadata “tags” data assets with descriptive information (key words, essential characteristics, etc) to simplify discovery by users and systems
- Might, for example, enable a loadmaster to pull data on weight, cube and hazardous material contents of a medical assemblage

# Concepts: Discovery Metadata

Structure of the DOD Discovery Metadata Standa



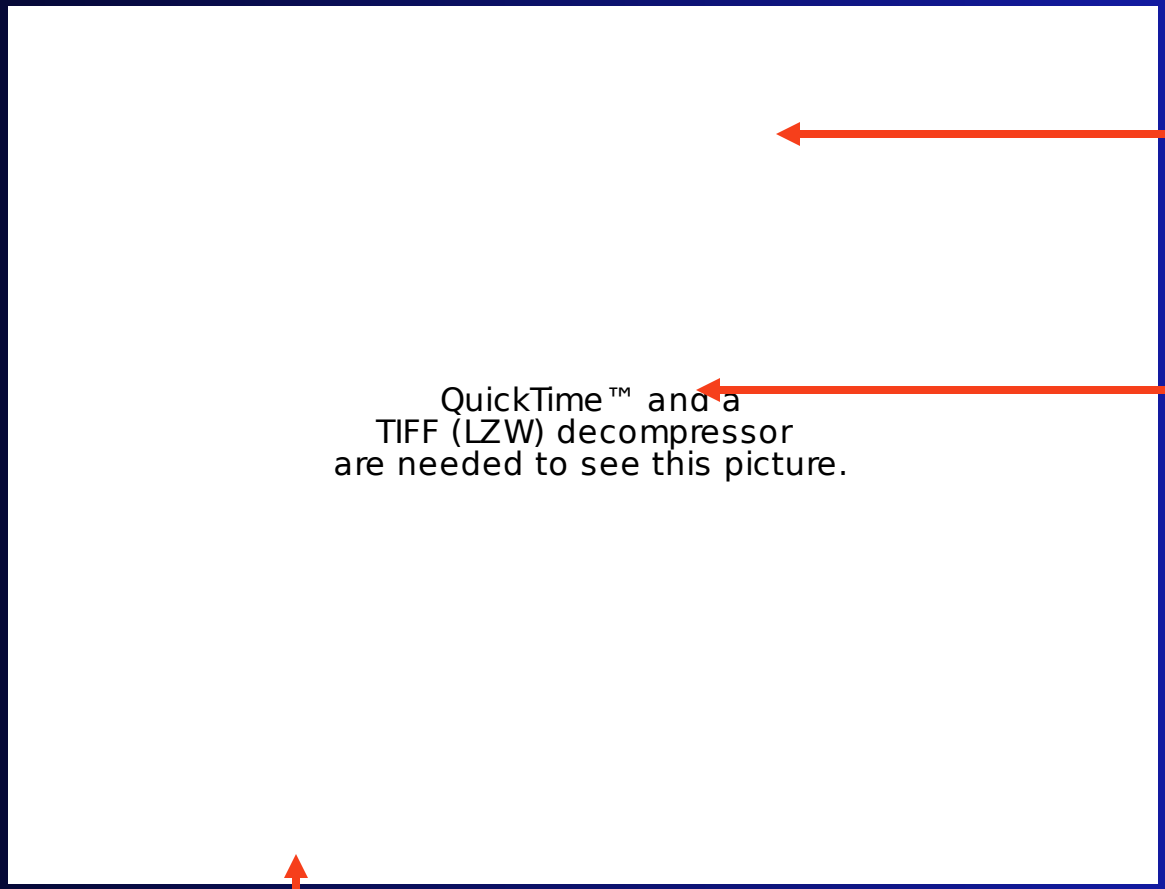
# Concepts: Data Pedigree

- Data pedigree is a subset of Resources, one of the four categories in the Draft DoD Discovery Metadata Standard
- Pedigree must identify the creator of the data asset and can include the publisher, contributor(s), source (derivation) and effective date of a data asset

# Concepts: Designated Authoritative Source

- A source identified by a COI as authoritative (for the community's domain) and published as such to the Enterprise
- Allows users and applications to evaluate and understand community-implied authority
- COIs resolve conflicts and coordinate with DoD-wide governance body

# Synthesis of Concepts




- Engineered point-to-point data feeds are retained as appropriate
- COI maintains Metadata for its shared space
- Synchronization is simplified whe systems share rather than duplicate data

Scope of the Net-Centric Data Strategy

# NET-CENTRIC DATA MANAGEMENT STRATEGY

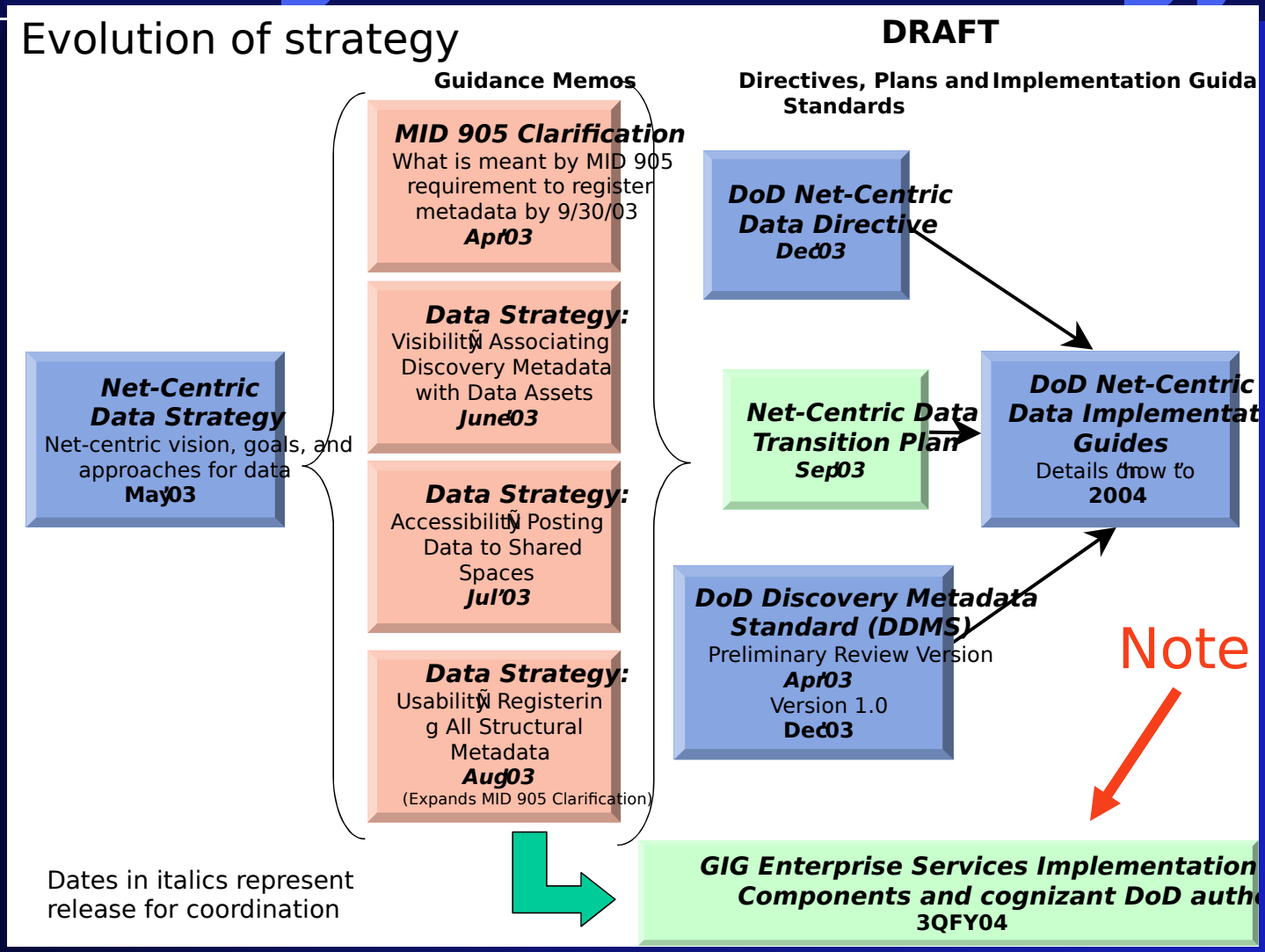
# Net-centric Data Management Strategy

- Policy: ***Data assets are made available to any user or application except when limited by policy, regulation, or security***
- Goals:
  - Make data visible
  - Make data accessible
  - Institutionalize data management
  - Enable data to be understandable
  - Enable data to be trusted
  - Support data interoperability
  - Be responsive to user needs

# Net-centric Data Management Strategy

- Resources
  - “Incentives may include rapid or continued funding for initiatives that implement these data approaches (e.g., providing metadata in accordance with the DDMS)”
  - Rapid Acquisition Incentive - Net Centricity (RAI-NC)
  - Priority incentive funding will go to initiatives that meet RAI-NC criteria
- Schedule
  - Not well-defined past 2005; guidance soon
  - Payoff depends on global information grid schedule; DoD components submit budgets and schedules for FY06 program review (in progress)

# Net-centric Data Management Strategy



# Data Roadmap from Net-Centric Data Strategy

QuickTime™ and a
TIFF (LZW) decompressor
are needed to see this picture.

# NET-CENTRIC MEDICAL CATALOG

# Net-Centric Medical Catalog: What might it take?

- Understand and formalize data requirements of all known catalog users
- Reconcile As-Is logical data models:
  - DMLSS-R&W, JMAR, BSM, Services
  - Reverse engineer as much as possible
- Create To-Be logical data model
  - Secure consensus within MedLog COI
  - Provide governance of data configuration
  - Target for all future systems development
- Register structural metadata

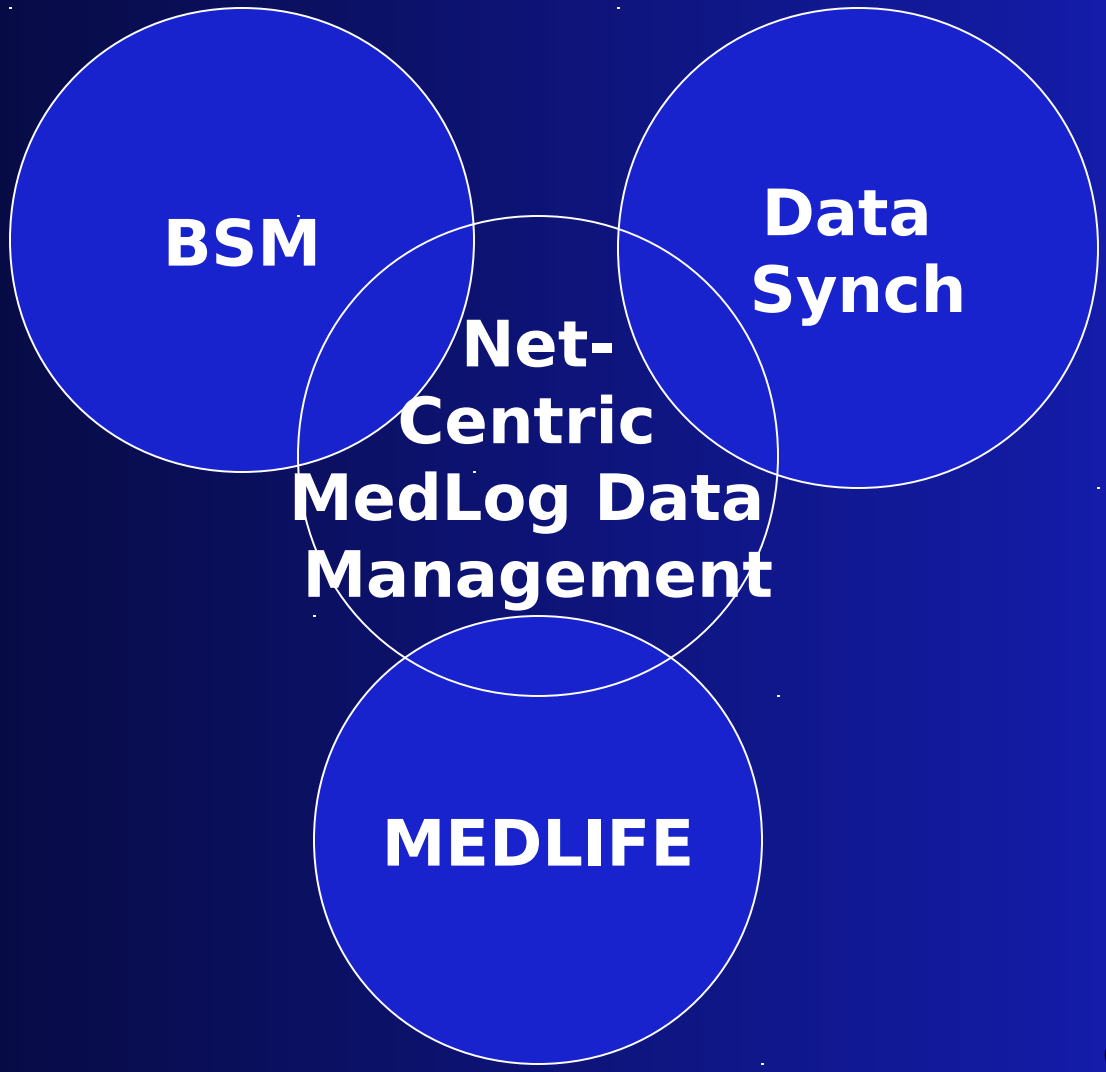
# Net-Centric Medical Catalog: What might it take?

- Integrate data bases (e.g., MEDLIFE)
- Enable “intelligent pull” to retail servers and other systems
  - Modify applications to use shared data assets, but retain As-Is business processes
  - Design and develop shared space
  - Develop basic discovery metadata
- Formalize integrated or coordinated program baselines, esp. schedules

# Net-Centric Medical Catalog: What changes might it enable?

- Greater clinical access to and involvement in logistics processes:
  - Smart clinical-business trade-offs
  - Readiness planning
- Improved coordination and synergy among retail customers, wholesale managers, and readiness planners
- Increased agility in business and expeditionary operations

# Relation to Other Initiatives



# Relation to BSM

- Don’t know extent to which BSM data models are formally defined
- Consistent data models would simplify data sharing between BSM & DMLSS-W
  - High-level logistics entities driven by BSM
  - Medical-specific entities, attributes and relationships should be up to MedLog COI
- More efficient to share if BSM conforms to net-centric data management tenets
  - If not, use data feeds

# Relation to Data Synchronization

- Net-centric data management does not address data quality —> left as a COI responsibility
  - “Quality” implies defined criteria for accuracy, validity, completeness, timeliness, consistency, etc …
- Quality of *commercial* data in a catalog depends heavily on an effective PDU
  - Relationships and attributes are added by DoD downstream
- PDU is also a vital link to ensure derived commercial data supports standards-compliant DoD catalog
  - Mandated standards in Joint Technical Architecture
  - Metadata standards developed by medical logistics COI
- Authoritative data in a net-centric catalog could avert most data synch issues *between* MedLog systems

# Relation to MEDLIFE

- DMLSS-W / MEDLIFE seeks to integrate existing, web-shared databases and reduce duplication
- Many elements of a net-centric catalog are either:
  - Accessioned into DMM databases from commercial sources
  - Created as part of value-adding management activities at DMM (e.g., equivalency codes, NSNs, pricing agreements)
- DoD Net-Centric Data Management Strategy is a natural framework for MEDLIFE to adopt
  - Data integration through reusable frameworks
  - Web-accessibility plus “smart pull” for other systems

# SUMMARY

# Strategic Opportunities

- Net-Centric Catalog:
  - Internal (i.e., within DoD) synchronization and currency of catalog data
- Migration to a data-centric DMLSS-R
  - Reduced MTF time spent maintaining catalogs
  - Better business decisions at MTFs
  - Improved information to JMAR
- Net-centric architecture
  - Greatly increased interoperability
  - Symbiosis for DMLSS and “Big Logistics” systems
  - Share data and structurally embedded business rules; but ***own the application-based processes***

# Strategic Challenges

- Cultural transformation
  - Shared data is a shared responsibility
  - ***Act together as a disciplined, mutually supportive Community of Interest***
- Migration of DMLSS-R: *shift emphasis* from client-server to data-centric application
- Synchronized program management of DMLSS-R and DMLSS-W development
- Consistent metadata structure for JMAR, DMLSS-R/W and common data entities in Service-unique systems

QUESTIONS
&
DISCUSSION

# BACKUP SLIDES

# Concept Summary: Medical Logistics Cross-Walk

- Shared space—essential to net-centric catalog and key to DoD data strategy
  - Eliminates need for so much “internal” data synch
- COI—Medical Logistics already functions as a robust, cross-functional COI; leaders need to align with emerging governance structures
  - Promote integrated medical logistics data model
- Data pedigree and authoritative sources
  - Essential to establish data quality and enable retail activities to trust shared space catalog data
  - Compliment data synch and product data utility

# Concept Summary: Medical Logistics Cross-Walk

- Structural metadata—consistent To-Be logical data model, that all medical logistics systems can converge on, is imperative for successful data sharing
  - Much can be derived / reverse engineered
  - Resolve key disconnects early
- Discovery metadata—Less critical than structural for initial deployment
  - DDMS allows much flexibility on granularity of tagging; can evolve over time

# Concepts: Communities of Interest (COI)

